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PROCEEDINGS
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ON TWO NEW COLOBOGNATH MILLIPEDS AND RECORDS OF
SOME ESTABLISHED SPECIES FROM EAST OF THE ROCKY
MOUNTAINS

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The two species of colobognath millipeds described here raise the number known from east of the Rocky Mountains to nine, representing five genera (Cook and Loomis 1928, Loomis 1936, Chamberlin 1940, Chamberlin and Mulaik 1941). The states of Louisiana, Mississippi, and Florida, from which no collections are known, should yield interesting specimens of this order, which is predominately tropical in its distribution. It is also imperfectly known in the New England States.

Type specimens of *Polyzonium bikermani* will be deposited at the Philadelphia Academy of Natural History; those of *P. mutabile* are in the permanent collection of the Illinois Natural History Survey. Where no collector is mentioned, collection was by the author. I am grateful to Dr. M. W. Sanderson for the use of the specimens from the Illinois Natural History Survey.

Family Polyzoniidae
Genus *Polyzonium* Brandt

This genus, represented also in Europe by several species, is known from as far north as New Hampshire and southwest into Arkansas; it doubtless will be found in most of the states east of the Rocky Mountains.

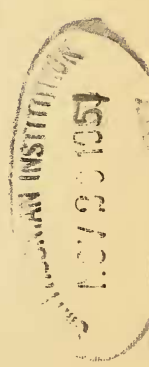
Polyzonium bivirgatum (Wood 1864)

Polyzonium bivirgatum (Wood). Cook and Loomis, 1928, Proc. U. S. Nat. Mus., vol. 72, art. 18, p. 18, fig. 4. This paper contains a synonymy.

Polyzonium rosalbum (Cope). Williams and Hefner, 1928, Ohio Biol. Survey, Bull. 18, p. 104, figs. 7 and 8.

The only published figure of the gonopods of *P. bivirgatum* is that of Williams and Hefner; it corresponds with my specimens from Cumberland Falls State Park, Kentucky, and Durham, North Carolina, except that there are six articles in each of the anterior gonopods and five in the posterior, and the several straight setae about midway on the seminal blade and the setae on the other articles of the gonopods are omitted. The specific distinction in the anterior gonopods is the spatulate coxal process and the attenuated seminal blade with the opening of the seminal canal subterminal. In immature specimens the opening of the canal is terminal, the coxal process is conical, and the number of body segments is presumably 33 or under.

Wood (1864, 1865) reported the color of specimens believed to be from Georgia as "brown, with a fuscous stripe on each side . . . the



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feet are dark-colored." Cope (1870) found Tennessee specimens a delicate rose, shading to whitish at one end and orange at the other; McNeill's (1887) Indiana specimens were light brown or parchment color, while the Ohio specimens of Williams and Hefner were yellowish white to pale rose. My specimens from Tennessee, Kentucky, and North Carolina have been a delicate rose color, except for the light brown antennae, when collected. Wood and probably McNeill described the color of preserved material. It is very doubtful that the Michigan specimen that Bollman (1895, p. 95) described as having "antennae almost black; face and legs mottled with a purplish shade" is *bivirgatum*; these colors more nearly resemble those of *mutabile*, which I know only from preserved material.

The repugnatorial secretions have a strong camphor-like odor.

The extent of the range of *bivirgatum* is unknown; it doubtless has been confused with the two following species in some earlier publications.

Polyzonium bikermani, sp. nov. (Fig. 1)

This species closely resembles *bivirgatum* in the shape and size of the body and in the shape of the coxal process of the male gonopods; the two can be distinguished by differences in color, odor of the repugnatorial secretions, the shape of the seminal blade, and the position of the opening of the seminal canal.

Male holotype. Color of dorsum cream or very light tan, lighter along lateral margins; legs and venter lighter; antennae and head light tan. Four ocelli in each of the two rows, both rows set in black, comma-shaped areas which are not confluent medially and are partly covered but visible through the tergite of the first segment. Repugnatorial secretions with but a slight trace of the camphor odor that is so noticeable in the secretions of *bivirgatum*.

Each anterior gonopod consists of five articles. The first or coxal article (Fig. 1, I), scarcely visible from the posterior view, from the anterior is seen to be broad, short, and prolonged mesially into a spatulate lobe or process (c p) which bears several straight, subterminal setae. The trochanter (II), also visible from the anterior view, is narrow and has a row of 6 or 7 setae across it. The prefemur (III), the largest article of the gonopod, is visible from both anterior and posterior views; about 10 setae are on its crest. The femur (IV), slightly smaller than the prefemur, and the postfemur (V), smaller than the femur, both have several setae on the crest and are visible mainly from the posterior view of the gonopod. The tarsal article or seminal blade (VI), slightly shorter and thicker than in *bivirgatum*, is of almost uniform width throughout its length; distally it is excised, the seminal canal opening in the middle of the excision; a few straight setae are about midway of its length. The posterior gonopods appear to be like those of other species studied. There are four setae on each of the two sternal horns adjacent to the anterior gonopods; in *bivirgatum* each horn has one seta.

Width 1.7 mm., *length* about 12 mm., 40 segments, 4 of them legless.

Female allotype 41 segments; similar in size and appearance to the male.

Locality.—Devil's Den State Park, Washington Co., Arkansas, Sept. 25, 1949; 21 specimens of different ages.

Other collections have been made throughout the year in mixed decidu-

ous woods in Washington, Benton, and Carroll counties, Arkansas. This fairly abundant species is usually collected from slightly damp leaf litter; it rarely occurs under logs or rocks nor is it found in conspicuous aggregations. This is in marked contrast to another colobognath millipede, *Brachycybe lecontii*, which occasionally occurs at the same collecting site, but prefers the lower surface of decaying stumps or logs, where it sometimes is found in brilliant rose aggregations of 100 or more individuals of various ages.

It is a pleasure to name this species for Mr. J. J. Bikerman.

Polyzonium mutabile, sp. nov. (Fig. 2)

Distinguished from other species of the genus by the shorter and broader coxal process of the anterior gonopods of the male.

Male holotype.—Color in life unknown; in alcohol the dorsum is brownish yellow, paler posteriorly and along the lateral margins, with inconspicuous narrow brown bands on the posterior margins of the tergites and along the mid-dorsal line; legs and venter cream. Antennae medium brown, a narrow dark brown band on the margin of each article. Four black ocelli in each of the two rows, both rows set on black, comma-shaped areas which are not confluent medially, and which are about half covered by the tergite of the first segment. Odor of repugnatorial secretions unknown.

Posterior gonopods with usual appearance. Anterior gonopods (Fig. 2) more inflated than in the other two species of the genus, but the number and general proportions of the articles is similar. Coxal process (cp) bluntly rounded, the margin thickened medially and distally in such a way that the process almost appears uncinat; on its mesial surface are about 20 very short uncinat setae. Seminal blade (VI) distally truncated, flattened, slightly bent laterad; seminal canal (sc) opens distally. Setae distributed as shown in figure 2. Five or six setae on each of the two sternal horns adjacent to the anterior gonopods.

Width 1.9 mm., *length* about 13 mm., 30 segments, 2 of them legless.

Locality.—Winthrop Harbor, Illinois; 18 specimens, 4 of them adult males, were collected March 17, 1933, by T. H. Frison.

Additional specimens in the collections of the Illinois Natural History Survey are from the following places in Illinois: Starved Rock State Park, White Pines State Park, Mt. Carroll, Magnolia, Rocky Branch, and Dolson. The largest number of segments, 41, was found in a female.

Key to Species of *Polyzonium* Based on Gonopods of Adult Males

- 1 (4) Coxal process of anterior gonopods spatulate, longer than wide, the setae straight and relatively long 2
- 2 (3) Seminal canal opens subterminally on attenuated seminal blade
bivirgatum (Wood)
- 3 (2) Seminal canal opens in middle of an excision in end of seminal blade, which is but slightly attenuated *bikermani* Causey
- 4 (1) Coxal process of gonopod wider than long, margin thickened, about 20 very short, uncinat setae on its mesial surface
mutabile Causey

Family Andrognathidae
Genus *Brachycybe* Wood
Brachycybe lecontii Wood

Records.—Arkansas: Carroll, Marion, Newton, Searcy, and Washington Counties.

Illinois: Pulaski Co., P. W. Smith, June 1, 1949.

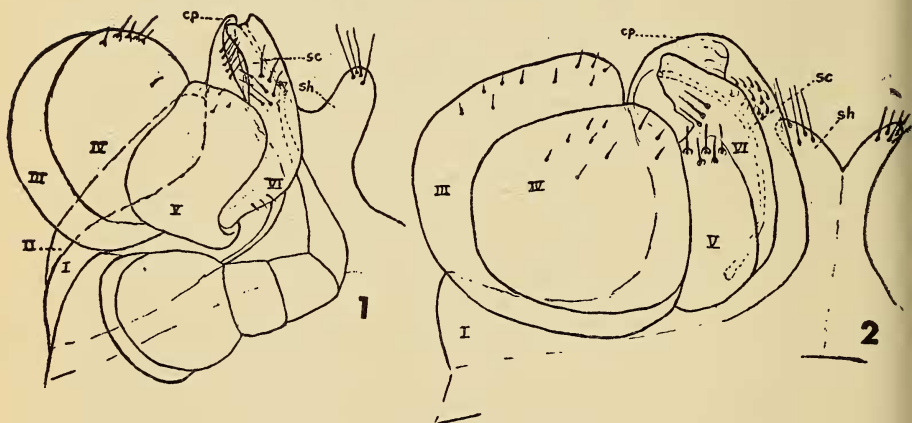
Kentucky: Whitley Co.

Brachycybe petasata Loomis

Records.—North Carolina: Cherokee, Jackson, and Swain Counties.

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EXPLANATION OF FIGURES Plate XII

Fig. 1. *Polyzonium bikermani*. Right gonopods and sternal horns, posterior view, male paratype. Articles of anterior gonopod, I-VI; s c, seminal canal; c p, coxal process; s h, sternal horns.

Fig. 2. *Polyzonium mutabile*. Right anterior gonopod and sternal horns, posterior view, male holotype.